Letter to the Editor

Epidemiology dynamic of common respiratory virus in spring, 2018–2023 in Guangdong Province, China

Yangqianxi Wang[1#], Yong Liu[2#], Jingyi Liang[3], Jiaxi Sun[4], Minyi Zhang[4], Zichen Chang[4], Yinqiu Guo[4], Wenting Zeng[4], Tie Liu[4], Zhiqi Zeng[1,4,5*], Chitin Hon[1,3,6*], Zifeng Yang[1,6,7*]

[1]Respiratory Disease AI Laboratory on Epidemic Intelligence and Medical Big Data Instrument Applications, Macau, China; [2]KingMed Virology Diagnostic and Translational Center, Guangzhou KingMed Center for Clinical Laboratory Co., Ltd., Guangzhou, China; [3]Department of Engineering Science, Faculty of Innovation Engineering, Macau University of Science and Technology, Macau, China; [4]Guangzhou Key Laboratory for Clinical Rapid Diagnosis and Early Warning of Infectious Diseases, KingMed School of Laboratory Medicine, Guangzhou Medical University, Guangzhou, China; [5]Engineering Technology Research Center of Intelligent Diagnosis for Infectious Diseases in Guangdong Province, Guangzhou, China; [6]Guangzhou Laboratory, Guangzhou, China; [7]State Key Laboratory of Respiratory Disease, National Clinical Research Center for Respiratory Disease, Guangzhou Institute of Respiratory Health, The First Affiliated Hospital of Guangzhou Medical University, Guangzhou, China

[#]These authors contributed equally to this work as co-first authors.

[*]These authors contributed equally to this work.

Correspondence to: Zifeng Yang, MD. State Key Laboratory of Respiratory Disease, National Clinical Research Center for Respiratory Disease, Guangzhou Institute of Respiratory Health, The First Affiliated Hospital of Guangzhou Medical University, Guangzhou, China; Respiratory Disease AI Laboratory on Epidemic Intelligence and Medical Big Data Instrument Applications, Macau 999078, China; Guangzhou Laboratory, 151 Yanjiang Road, Guangzhou 510120, China. Email: Jeffyah@163.com; Chitin Hon, PhD. Respiratory Disease AI Laboratory on Epidemic Intelligence and Medical Big Data Instrument Applications, Macau 999078, China; Department of Engineering Science, Faculty of Innovation Engineering, Macau University of Science and Technology, Taipa, Macau, China; Guangzhou Laboratory, 151 Yanjiang Road, Guangzhou 510120, China. Email: cthon@must.edu.mo; Zhiqi Zeng, PhD. Guangzhou Key Laboratory for Clinical Rapid Diagnosis and Early Warning of Infectious Diseases, KingMed School of Laboratory Medicine, Guangzhou Medical University, 195 Dongfeng Xi Road, Guangzhou 510282, China; Respiratory Disease AI Laboratory on Epidemic Intelligence and Medical Big Data Instrument Applications, Macau, China; Engineering Technology Research Center of Intelligent Diagnosis for Infectious Diseases in Guangdong Province, Guangzhou 511436, China. Email: zeng_zhiq@126.com.

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Respiratory pathogens represent a substantial concern within the domain of public health, given their capacity to induce severe illnesses and even fatal outcomes (1). Recent years have witnessed the emergence of previously unknown infectious agents affecting the respiratory tract. Notably, the global repercussions of the coronavirus disease 2019 (COVID-19) pandemic serve as a striking example, bringing about profound economic and societal impacts (2,3). Consequently, it becomes imperative to undertake vigilant monitoring and meticulous analysis of the prevalence of conventional respiratory pathogens. This process is fundamental in shaping effective strategies for prevention and treatment. Within the scope of this study, we concentrate on examining the dataset pertaining to the detection of respiratory pathogens. Specifically, our focus is on data from spring, recognized for their propensity for respiratory illness incidence, spanning from 2018 to 2023 in Guangdong Province, China. Our objective is to scrutinize the variation in positive detection rates of respiratory pathogens during the months of April through June across these years. Given that the months of April to June consistently fall within the high-incidence period for respiratory diseases in southern China (4,5), we extracted data for these months each year for monitoring purposes. The insights derived from this analysis are intended to provide valuable guidance for informed decision-making within the realm of public health.

From January 2018 to June 2023, KingMed Diagnostics (KMD) conducted an extensive collection of 589,086 respiratory samples across 331 healthcare facilities, including

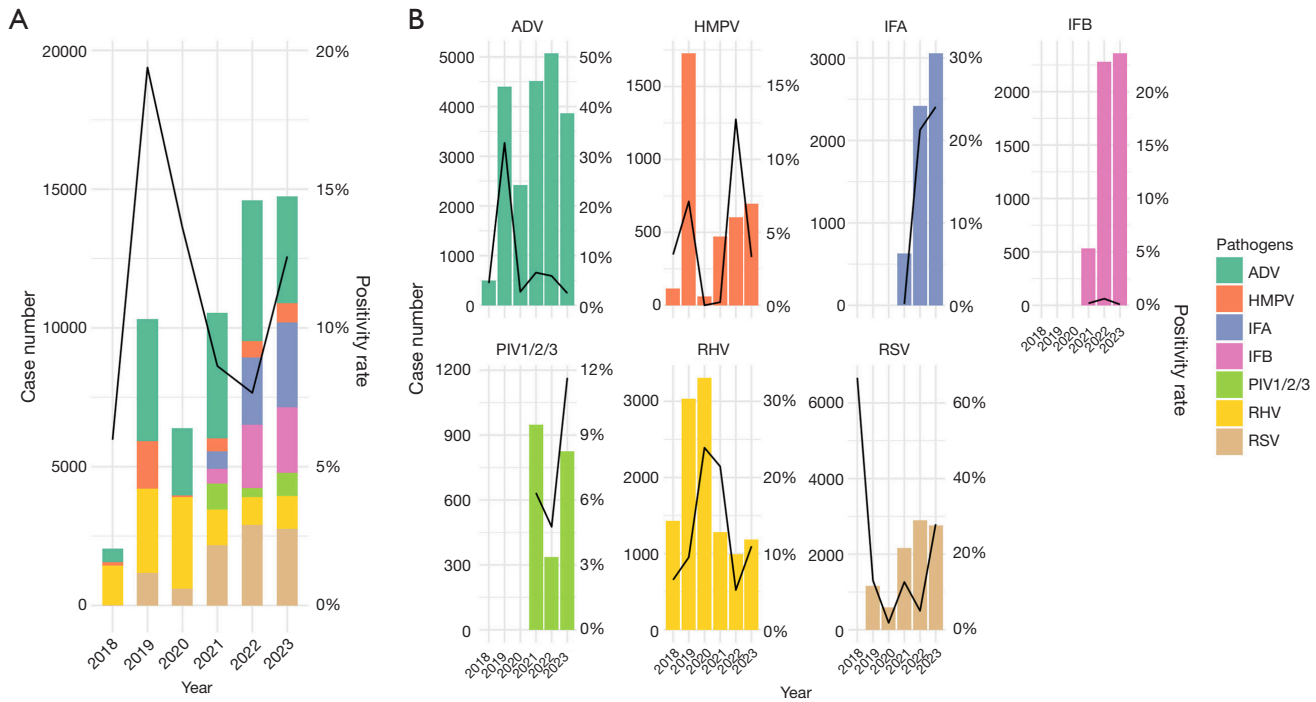

Figure 1 Transmission dynamic of multiple respiratory pathogens (ADV, IFA, IFB, HMPV, PIV1/2/3, RHV, RSV) in spring (April–June) from 2018 to 2023. (A) The overall detection of respiratory pathogens. (B) The detection of single viral respiratory pathogen. The height of bar represents the number of respiratory samples, and the dark line represents the positive rate. Reproduced with permission from AME Publishing Company (10). Note: The data for IFA, IFB, and PIV during the spring of 2018–2020 are missing, and the absence of RSV data for the spring of 2018 in the bar chart is due to insufficient testing data from that period. ADV, adenovirus; IFA, influenza A virus; IFB, influenza B virus; HMPV, human metapneumovirus; PIV1/2/3, parainfluenza virus types 1, 2, and 3; RHV, rhinovirus; RSV, respiratory syncytial virus.

hospitals, maternal and child health care centers, and community health service centers in Guangdong Province, China. These samples encompassed a range of specimen types, such as nasal and pharyngeal swabs, bronchoalveolar lavage fluid, oral secretions, sputum, pleural or peritoneal fluid, and were subjected to comprehensive testing for various respiratory pathogens. The pathogens under investigation included adenovirus (ADV), influenza A virus (IFA), influenza B virus (IFB), human metapneumovirus (HMPV), parainfluenza virus 1/2/3 (PIV1/2/3), rhinovirus (RHV), and respiratory syncytial virus (RSV). Participants in this study encompassed individuals from diverse age groups, including newborns, infants, children, adolescents, adults, and the elderly.

According to our research findings, we have identified some trends in pathogen detection (*Figure 1*). Firstly, the overall positive detection rate reached its highest level (19.4%) in 2019 and dropped to its lowest in 2022 (7.7%). This may be related to the implementation of public health measures during the COVID-19 pandemic (6) and the interactions between pathogens (7). Secondly, in the period from April to June of 2018, the positive detection rate for RSV was the highest, reaching 33.3%, while in 2019, ADV had the highest positive detection rate at 32.7%. With the introduction of testing for IFA, IFB, and PIV1/2/3 in 2021, we observed different trends. In that year, the positive detection rate for RHV was the highest at 21.5%, followed by IFA at 21.3% in 2022.

Among the various pathogen detection projects, there was a noticeable decrease in positive detection rates in 2020. Over time, except for PIV1/2/3, ADV, IFA, RHV, and RSV showed varying degrees of increasing trends, possibly reflecting seasonal variations (8) in pathogen prevalence and changes in population immunity (9). Particularly noteworthy is the peak in HMPV detection in 2022, which may be related to the seasonal prevalence

of this pathogen. Additionally, IFA detection rates showed a continuous upward trend, warranting close attention in future monitoring data. These results contribute to a better understanding of pathogen trends and provide important information for epidemic prevention and control.

Overall, these findings provide valuable insights into pathogen epidemiology, guiding efforts in disease prevention and control. This research contributes to our understanding of pathogen trends and offers critical information for public health interventions and strategies. Future studies should continue to monitor and analyze these trends to adapt and refine our approaches in combating infectious diseases.

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. The study was conducted in accordance with the Declaration of Helsinki (as revised in 2013). The study was approved by the ethics committee of KingMed Diagnostics (No. GZKM-2019-24) and informed consent was taken from all the patients.

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